

## FLOUR

**FLOUR** is a powdery food made by grinding grain. Most flour is made from wheat and is used to bake bread. Other cereal grains that are ground into flour include barley, corn, millet, oats, rice, and rye. Flour is the basic ingredient of such foods as cakes, cookies, crackers, macaroni, and pancakes.

Bread ranks as the world's most widely eaten food, and people in many countries receive more than half their nourishment from foods made with flour. Each person in the United States eats an average of about 125 pounds (57 kilograms) of flour from wheat and other grains annually. Canadians eat an average of about 135 pounds (61 kilograms) of flour per person each year.

By the 9000's B.C., prehistoric people were grinding crude flour from wild grain by crushing the grain between rocks. Later, the ancient Greeks and Romans used water wheels to power flour mills.

**Types of Flour.** White flour made from wheat accounts for more than 90 per cent of the flour produced in the United States. There are three main types of white wheat flour: (1) bread flour, (2) cake flour, and (3) all-purpose flour. Bread flour is milled chiefly for commercial bakeries. Cake flour is made for both com-

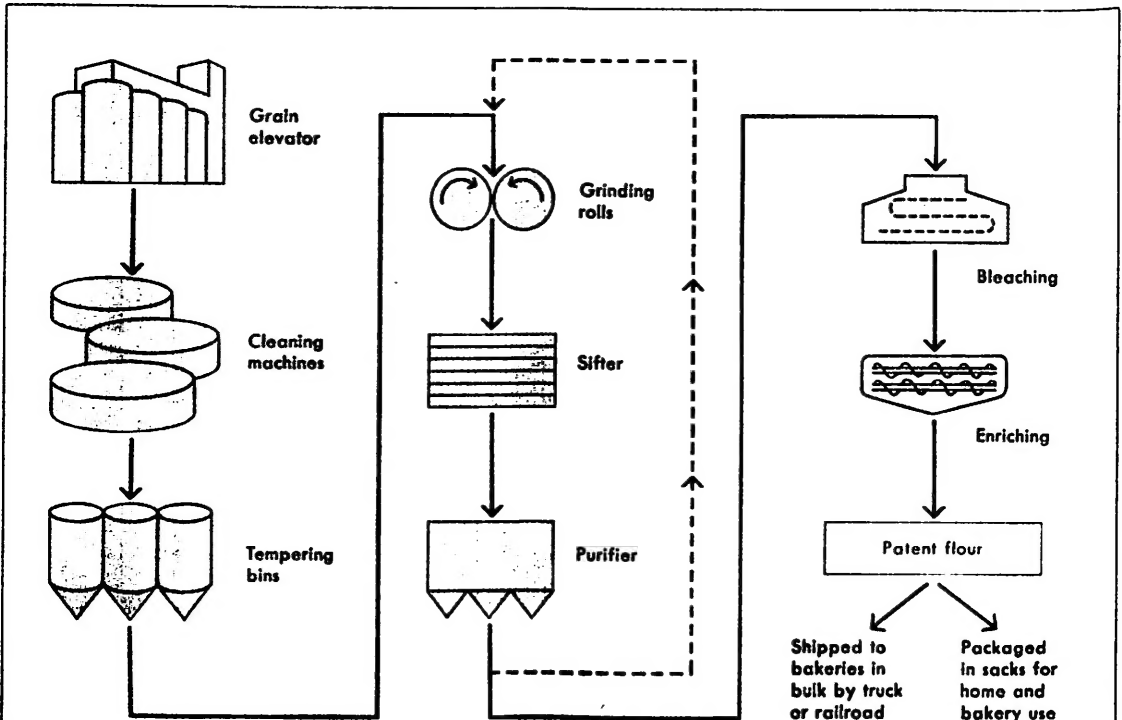
mercial and home baking. All-purpose flour is used mainly at home.

The three types of flour differ primarily in their protein content. Bread flour contains at least 11 per cent protein, and cake flour contains less than 8½ per cent protein. All-purpose flour, which is a blend of bread flour and cake flour, has a protein content of about 10½ per cent.

When the protein in wheat flour is moistened in dough, it forms a sticky substance called *gluten*. Bread flour dough has strong gluten, cake flour dough has weak gluten, and all-purpose flour dough has a blend of strong and weak glutes. Strong gluten works well with yeast to *leaven* bread, or make it rise. Weak gluten produces tender, crumbly baked goods, but it results in poor yeast-leavened bread. Therefore, bakers use bread flour for breads and use cake flour for pastries. All-purpose flour is used for such foods as cakes, cookies, rolls, and homemade bread, and in sauces.

Bread flour is sometimes called *strong flour* because it forms strong gluten. This kind of flour is also known as *hard-wheat flour* because it comes from varieties of wheat that have hard kernels. Millers call cake flour *weak flour* because it forms weak gluten, or *soft-wheat flour* because it is produced from wheat that has soft kernels.

### How Flour Is Milled



**Preparing the Wheat** for milling involves cleaning and tempering (moistening) the kernels. Wheat consists of a covering called the *bran*, an inner part called the *endosperm*, and a tiny new plant called the *germ*.

**Grinding the Wheat** breaks up the kernels. Sifters and purifiers then separate the endosperm from the bran and the germ. The endosperm is repeatedly ground, sifted, and purified until it forms flour.

**Bleaching and Enriching** whitens the flour and adds iron and vitamins. This high-quality flour, called *patent flour*, is loaded into trucks or railroad cars, or packaged in sacks. Mills sell it to bakeries and groceries.